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TITLE OF THE INVENTION

ARTICLE OF FOOTWEAR

INVENTOR

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ARTICLE OF FOOTWEAR

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is based upon French Patent Application No. 03.04888, filed April 18, 2003, the disclosure of which is hereby incorporated by reference thereto in its entirety and the priority of which is hereby claimed under 35 U.S.C. §119.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The invention relates to an article of footwear, particularly a shoe, more particularly a shoe adapted to foot racing, and more specifically to cross-country foot racing, such as races known as "raid".

2. Description of Background and Relevant Information

[0003] Cross-country foot racing is part of special races known as "raid" and generally takes place on mountainous grounds and over several days.

[0004] Initially, the shoes designed for such races had an upper made of leather or other materials adequately rigid to protect the foot from pebbles, etc.

[0005] More recently, Salomon has developed a special "XA Series" shoe designed specifically for this type of race. The shoe is extremely light and the upper of the shoe is simply constituted of a greatly ventilated mesh-type material.

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[0006] The XA Series shoe does have optimal ventilation, and its construction makes it possible to evacuate water as soon as one has crossed a stream.

[0007] The drawback of a shoe of this type is that it is preferably not worn without socks. Even though the shoe indeed evacuates water, the sock has a tendency to remain soaked and the foot is surrounded by dampness, withers and becomes tender.

SUMMARY OF THE INVENTION

[0008] An object of the present invention is to overcome the aforementioned drawbacks, and to provide a construction of an article of footwear, particularly a shoe, that facilitates ventilation and that can be worn without socks, even in very rough racing conditions

[0009] This object is achieved in the article of footwear according to the invention, which is of the type having an upper and a bottom assembly, in that the upper includes a liner that is assembled along a first longitudinal assembly seam and a second vertical assembly seam, both longitudinal and vertical seams being arranged on the lateral side of the article of footwear and being the only seams necessary for assembling the liner.

[0010] As a result, the upper, or liner, can have only two assembly seams on the inner side which, in addition, are only arranged on the lateral side and almost cannot be felt by the foot.

[0011] As a result, the article of footwear according to the invention can be worn without socks, even over long periods of time and with significant tightening, without the foot feeling any seam or being injured.

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[0012] Preferably, the upper is made of an extensible and ventilated material. Therefore, the upper adapts completely to the foot and allows the latter to breathe.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The invention will be better understood and other characteristics thereof will become apparent from the description that follows, with reference to the annexed schematic drawings showing several preferred embodiments by way of non-limiting examples, and in which:

FIG. 1 is a perspective view of a shoe according to a first embodiment of the invention;

FIG. 2 is an exploded perspective view of the shoe of FIG. 1;

FIG. 3 is a flat view of the patterns of the liner and of the gusset;

FIG. 4 is a view, similar to FIG. 1, of a shoe according to another embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0014] FIGS. 1 and 2 illustrate a sports shoe 1 according to the invention. The shoe includes a bottom assembly 10, a lacing system 20, and an upper 30, in this case a low upper, although the invention encompasses articles of footwear with high uppers, that is, uppers that extend above the ankle of the wearer.

[0015] As shown more particularly in FIGS. 2 and 3, the upper 30 fundamentally includes a liner 40 made from a pattern in a single-piece and defines both a vamp 41 and a bottom or sole 42, as well as an opening 45 for the passage of the foot and for lacing, and an upper edge 46.

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[0016] As described below, the liner 40 is assembled by means of only two seams, such as stitched seams, namely a zigzagging vertical seam 43, or substantially vertical seam, that flat joins the two ends 41c, 41b of the vamp, and a Stroebel longitudinal seam 44 that assembles the free edge 42a of the sole with the lower edge of the end 41c of the vamp.

[0017] As shown in FIG. 2, the Stroebel seam 44 is located only on the lateral side of the shoe, as is the zigzagging seam 43.

[0018] The two seams 43, 44 are the only two seams for assembling the liner 40 itself, and they are located on the inner side thereof.

[0019] Because these seams are flat and are located on the lateral side of the liner, they do not create a discomfort for the foot, even if the latter is exposed, and if the shoe is worn for several hours and under extreme racing conditions.

[0020] A comfort tongue 47 is assembled by its lower end 47a to the lower end of the lacing opening 45.

[0021] A yoke 31 is assembled to the upper in the heel zone so as to form a gusset in which a heel stiffener 32 will be positioned. The yoke or gusset 31 is attached by its upper edge 31a to the upper edge 46 of the upper by a seam that is turned over in order not to create a seam within the liner. It is then attached as a lasting allowance by its lower edge 31c to the upper and to the bottom assembly 10.

[0022] In a particular embodiment, the gusset 31 is also sewn to the liner along its vertical edges 31b by a single, non-perceptible stitch-type seam, so as not to constitute a hindering seam for the foot inside the liner. The gusset 31 can also be glued to prevent any presence of a seam. It can also be simply sewn by its upper edge 31a.

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[0023] According to a particular embodiment, foam is positioned between the outer wall of the liner 40 and the heel stiffener 32 prior to the closure of the gusset 31. The heel stiffener 32 as well as the foam can be maintained in place by an adhesive, that is, by a glue.

[0024] The liner 40 is made of a very flexible, extensible, and ventilated material so as to adapt properly to the foot contour, to be comfortable and pleasant to wear, and to evacuate moisture and perspiration properly. This material is also treated for bacteria and is preferably made of a moisture evacuating material. As shown in FIG. 2, this material 50 preferably has a three-dimensional structure, namely two textile layers 51, 53 connected by a layer of connecting threads 52 extending essentially perpendicular to these two layers 51, 53.

[0025] According to a particular embodiment, the layer 51 located next to the skin is a mixture of nylon and polyester, the threads of the connecting layer 52 are made of polyester, and the outer layer 53 is also made of a polyester, particularly a polyester known by its commercial name "COOLMAX"®.

[0026] The liner 40 is further covered at the front by an outer protective layer 33, comprises in this case by a fine-meshed lattice material. The lattice of the protective layer 33 is preferably made of a nondeformable material, such as NYLON®. The protective layer 33 covers the liner 40 from its front end to the area of the vertical edges 31b of the gusset 31.

[0027] The primary purpose of the protective layer 33 is to prevent, at the front, any penetration of foreign material such as sand, dust, etc., inside the liner.

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[0028] Indeed, since the shoe is adapted to be worn without socks, it is essential to prevent any penetration of foreign material. At the rear, the protective function is ensured by the gusset 31 and the stiffener 32/foam assembly located within the gusset.

[0029] In order to limit the number of seams, the protective layer 33 is assembled to the liner 40 only by a single seam along the lacing opening 45 and in the area of the liner/gusset connection. The bottom of the protective layer 33 is further assembled to the upper and to the bottom assembly 10 during the assembly itself.

[0030] To complete the imperviousness of the liner 40, an impervious gaiter 34 can be attached along the upper edge 46 and lacing opening 45 of the liner, as shown in FIG. 1.

[0031] The purpose of this gaiter 34, as well as the lattice 33, is essentially to prevent any penetration of foreign material inside the liner 40 and, therefore, to prevent such foreign material from coming into direct contact with the foot. This gaiter 34 is made of a fine-meshed, elastic material, such as LYCRA®. It behaves like a sock attached to the upper edge of the liner. This gaiter 34 is provided in the lacing zone with a hole 35 whose purpose is explained below. The hole 35 is "blocked" by the tongue 47 located underneath and therefore does not compromise the imperviousness of the liner. A protective end piece 38 is further attached, preferably by gluing, to the front end of the liner 40.

[0032] The lacing system 20 has two tightening quarters 21 arranged symmetrically on the lateral and medial sides of the shoe. In the illustrated embodiment of the invention, each tightening quarter 21 is formed of a plurality of straps or tongues 22, each being V-shaped and mounted on a heel strap 25 that extends obliquely from the bottom assembly, at the front of the quarter, up to the top of the heel stiffener 32, at the rear, by surrounding the heel.

[0033] An outer heel stiffener 27 can further be associated with the lacing system 20. Each tightening tongue 22 of the tightening quarters of the lacing system is provided at its upper end with a keeper 23 adapted to receive a lace 24 or the like, the tightening being performed, for example, by means of a blocker 28. The tongue 22/heel strap 25 assembly is assembled to the upper 30 in this particular embodiment as a lasting allowance at its lower edge 26.

[0034] Nevertheless, seams 25a for assembly to the liner 40 can be provided, for example, in the area of the heel strap 25.

[0035] Other tightening mechanisms, such as hook-and-loop fastening system, such as VELCRO®, can be provided. The two tightening quarters 21 can be completely symmetrical, or they can be different, the medial tightening quarter, for example, being larger for having an effect of plantar arch support at the same time.

[0036] The hole 35 of the gaiter is adapted for the passage of the lace 24 and of its blocker 28 so as to guarantee the storage of the blocker inside the gaiter 34, and to prevent any risk of the blocker dangling loosely on the outside.

[0037] Finally, the bottom assembly 10 includes an outer sole 11 defined as a function of the end-use of the shoe. For example, the outer sole 11 has crampons or studs adapted to the type of use and is more or less stiff depending upon the use desired. The outer sole 11 can be made in one or more parts.

[0038] The bottom assembly 10 also includes a comfort sole or inner sole 12 made of a shock-absorbing and possibly a ventilated material, such as a foam known by its commercial name "BROCK"®.

[0039] The comfort sole 12 advantageously replaces the comfort soles that are generally arranged inside the upper, but it is here provided on the outside in order not to constitute, inside the liner 40, an edge that would constitute a break in the support surface and would be susceptible of causing injuries to a bare foot.

[0040] In fact, the boot construction explained hereinabove is a type of inverted construction, a maximum number of seams being transferred to the exterior of the liner, as well as to the inner sole. The result is a shoe that is very comfortable and pleasant to wear, even with a bare foot, and which nevertheless guarantees a good foot support and grip on the ground.

[0041] Furthermore, the savings in weight by eliminating socks is on the order of 80g per pair as a minimum, particularly with respect to wet socks, which is extremely important for endurance races.

[0042] As also to be understood, the maximum components of the shoe are also assembled between the upper 30 and the bottom assembly 10, during mounting, i.e., the gluing of the bottom assembly, as a lasting allowance, and this is particularly the case of the gusset 31, stiffener 32, protective lattice 33, end piece 38, and lacing system 20.

[0043] FIG. 4 illustrates another embodiment in which the same elements are designated by the same or similar reference numerals.

[0044] The differences between the shoe of FIG. 4 and those of FIGS. 1-3 include the lacing system, in the case of FIG. 4, the tongues 22a, 22b, and the heel strap 25, also being sewn to the liner 40 by seams 29.

[0045] Furthermore, the tongues of the tightening system are slightly different, the forward ones 22a being hollow, while the most rearward one 22b is solid.

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[0046] The present invention is not limited to the particular embodiments described here by way of non-limiting examples, but encompasses all similar or equivalent embodiments. The invention also encompasses any type of article of footwear for which similar or identical problems should be solved.